Orbital Coverage within 5° of the Magnetic Equator

The following figures, provided by Gene Heyler, demonstrate the spatial coverage of two orbits with different apogees. The orbits are taken to have 630 km perigees and 10° inclinations. Figure 1 provides the number of hours spent within 5° of the magnetic equator in various radial distance bins for 5.8 R_E apogee. All local times have been summed over, as any local time structure is very weak.

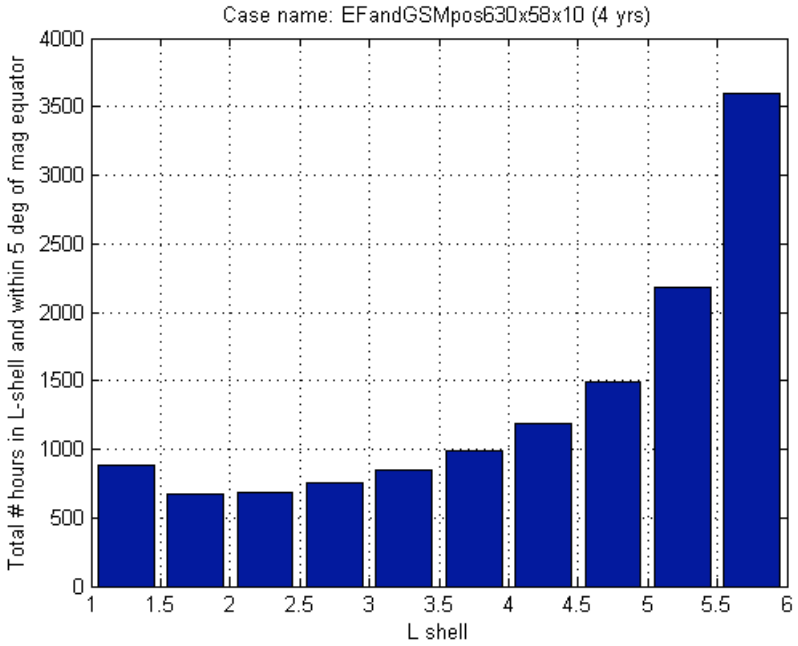

Figure 1. Apogee at 5.8 R_E geocentric

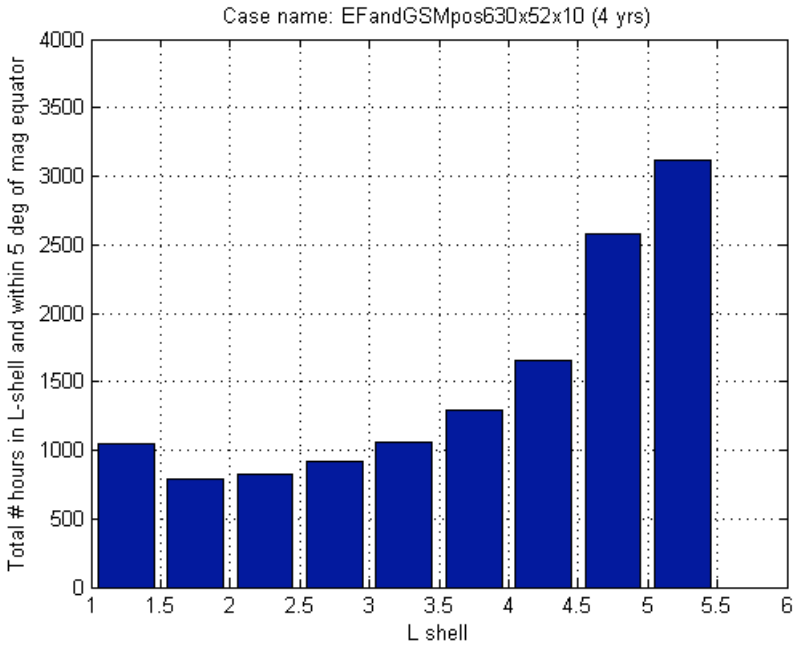

Figure 2. Apogee at 5.2 R_E geocentric

The following figures provide the local time coverage within 5° of the magnetic equator for the same orbits. These figures provide the fraction of the first 646 days of the mission (once around the Earth) spent within 5° of the magnetic equator in each one-hour MLT by 0.5 R_E bin and. It is clear that the local time structure of the orbital coverage is weak.

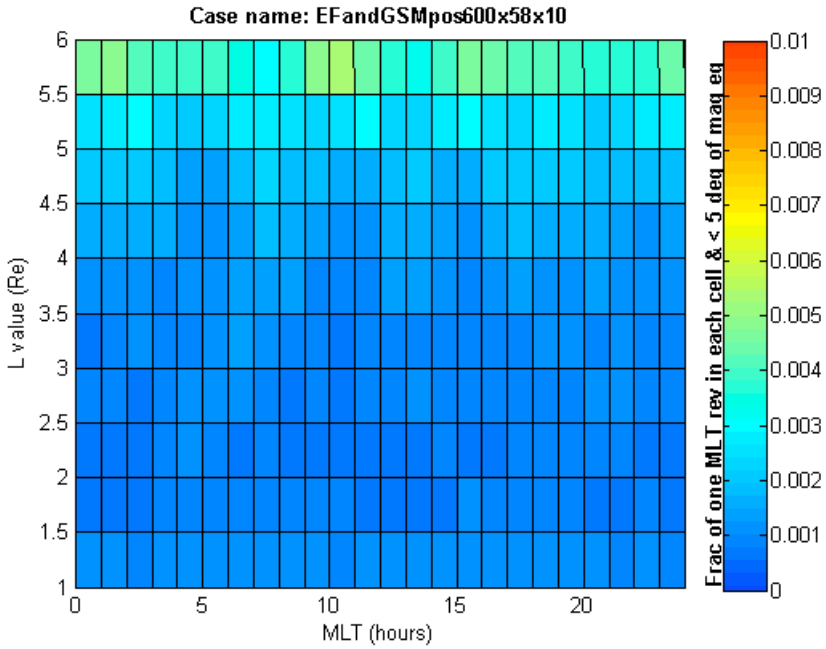

Figure 3. Apogee at 5.8 R_E geocentric

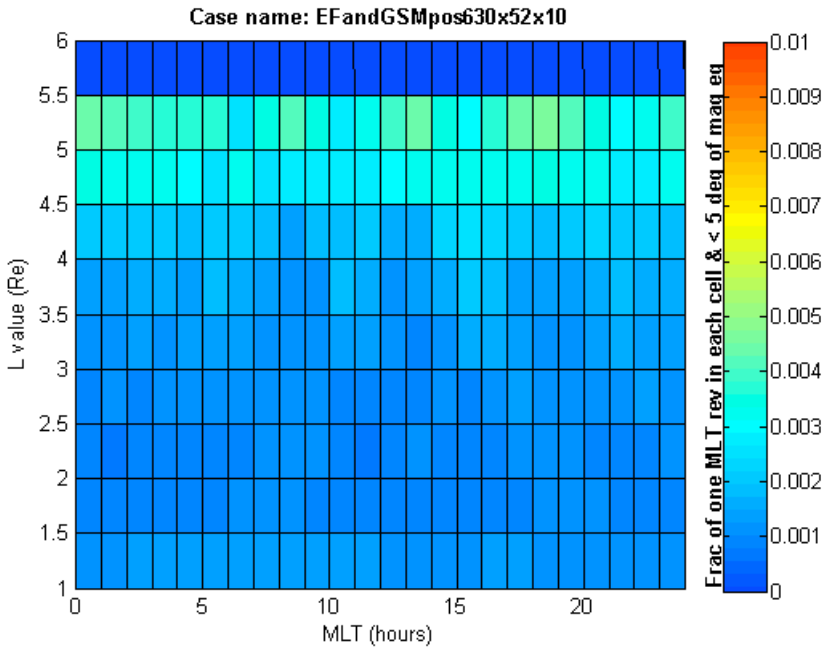

Figure 4. Apogee at 5.2 R_E geocentric